

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Art Unit: 2136

Victor L. Andelin

Confirmation No.: 6471

Application No.: **10/666,929**

**VIA ELECTRONIC FILING**

Filed: September 18, 2003

For: Digitally Watermarking Documents  
Associated With Vehicles

Examiner: D. CERVETTI

Date: October 21, 2008

**APPEAL BRIEF**

Mail Stop Appeal Brief – Patents  
COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Appellants respectfully request the Board of Patent Appeals and Interferences (hereafter the “Board”) to reverse the outstanding final rejection of the pending claims.

This Appeal Brief is in furtherance of a Notice of Appeal filed July 24, 2008. Please charge the fee required under 37 CFR 1.17(f) or any other fee needed to consider this Appeal Brief to our deposit account no. 50-1071.

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### **REAL PARTY IN INTEREST**

The real party in interest is Digimarc Corporation of Beaverton, Oregon.

### **RELATED APPEALS AND INTERFERENCES**

There are no related appeals or interferences.

### **STATUS OF CLAIMS**

Claims 1-42 are pending.

Claims 22-25 are allowed.

Claims 1-21 and 26-42 stand finally rejected.

Claims 1-21 and 26-42 are on appeal.

### **STATUS OF AMENDMENTS**

All earlier-filed amendments have been entered.

### **SUMMARY OF CLAIMED SUBJECT MATTER**

Each of the claims recites at least one steganographic element. Steganography includes the art or science of hiding auxiliary data in a host signal. One form of steganography is digital watermarking [*see, e.g.*, page 1, line 22]. Digital watermarking hides data through, e.g., slight alterations to data [*see, e.g.*, page 2, lines 13-29].

Claim 35 recites a printed document comprising: a document identifier; a first digital watermark including a first payload [*see, e.g.*, page 9, lines 11-13; *see also, e.g.*, page 1, line 22 – page 2, line 29], the first payload comprising a representation of the document identifier [*see, e.g.*, page 9, lines 15-19]; a second digital watermark including a second payload, the second payload comprising at least a reduced-bit representation of the first payload [*see, e.g.*, page 9, lines 13-14 and 19-20; *see also, e.g.*, page 1, line 22 – page 2, line 29].

Claim 26 recites a method to facilitate transfer of a motor vehicle from a seller to a buyer [*see, e.g.*, Fig. 3], the method including: receiving into a first data record information associated

with the motor vehicle or the seller of the motor vehicle [*see, e.g.*, page 14, lines 21-25; *see also, e.g.*, Fig. 3]; providing the buyer of the motor vehicle with a digitally watermarked object, the digital watermark comprising an identifier [*see, e.g.*, Fig. 3 (“Buyer’s Card”); *see also, e.g.*, page 14, line 26 – page 15, line 1]; associating the identifier with a second data record, the second data record including information associated with the buyer of the motor vehicle [*see, e.g.*, Fig. 3 (“Buyer’s Card”); *see also, e.g.*, page 14, line 26 – page 15, line 1]; associating the first data record with the second data record [*see, e.g.*, page 15, line 1-6; *see also, e.g.*, Fig. 3]; upon presentment of the digitally watermarked object, receiving optically captured scan data representing the digitally watermarked object, and analyzing the scan data to obtain the identifier [*see, e.g.*, Fig. 3; *see also, e.g.*, page 15, lines 6-10], said method further comprising accessing at least the second data record via the identifier [*see, e.g.*, page 15, lines 10-19; *see also, e.g.*, Fig. 3].

Claim 14 recites a method of providing authenticating information for a property title document [*see, e.g.*, Fig. 2], said method comprising: receiving a first digital signature that is associated with a seller of property [*see, e.g.*, page 12, line 26 – page 13, line 10; *see also, e.g.*, Fig. 2]; receiving a second digital signature that is associated with a buyer of the property [*see, e.g.*, page 12, line 26 – page 13, line 10; *see also, e.g.*, Fig. 2]; using the first digital signature and the second digital signature to provide a digital watermark payload, the payload comprising authenticating information [*see, e.g.*, Fig. 2; *and see, e.g.*, page 13, lines 11-17]; and steganographically embedding the digital watermark payload in the property title document [*see, e.g.*, Fig. 2; *and see, e.g.*, page 13, lines 17-19; *see also, e.g.*, page 1, line 22 – page 2, line 29].

Claim 1 recites a license plate for attachment to a motor vehicle, the license plate comprising auxiliary data steganographically embedded therein [*see, e.g.*, page 4, line 25 – page 5, line 4; *see also, e.g.*, Fig. 1, and page 7, lines 9-11 and 15-17; *see also, e.g.*, page 1, line 22 – page 2, line 29].

Claim 31 recites automatically notifying at least a government agency after the buyer confirms the transfer [*see, e.g.*, page 15, lines 20-23].

Claim 17 recites authentication information comprising an output of a function which includes the first digital signature and the second digital signature as inputs [*see, e.g.*, page 13, lines 14-16].

Claim 4 recites a digital watermark comprising an orientation component [*see, e.g.*, page 2, lines 3-9, and page 16, lines 16-17].

The above specification citations should not be construed as limiting claim scope, as other examples will fall within the scope of these claims. Additional and alternative support can be found throughout the application as well.

### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-21 and 26-42 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,907,528 (hereafter referred to as “the Bunn patent” or simply as “Bunn”).

### **ARGUMENT**

#### ***Rejections under U.S.C. 102(e) over the Bunn patent***

##### Claims 35

Independent claim 35 recites:

*35. A printed document comprising:*

*a document identifier;*

*a first digital watermark including a first payload, the first payload comprising a representation of the document identifier;*

*a second digital watermark including a second payload, the second payload comprising at least a reduced-bit representation of the first payload.*

*The Bunn patent does not have each and every element of claim 35; namely, it does not have a second digital watermark payload including at least a reduced-bit representation of a first digital watermark payload.*

It is well settled that in order for an Office Action to establish a *prima facie* case of anticipation, each and every element of the claimed invention, arranged as required by the claim, must be found in a single prior art reference, either expressly or under the principles of inherency. *See generally*, In re Schreiber, 128 F.3d 1473, 1477 (Fed. Cir. 1997); Diversitech Corp. v. Century Steps, Inc., 850 F.2d 675, 677-78 (Fed. Cir. 1988); Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

The final Office Action does not establish a *prima facie* case of anticipation since the Bunn patent does not have each and every element of claim 35; namely, it does not have a second digital watermark payload including at least a reduced-bit representation of a first digital watermark payload.

Said another way, Bunn does not have a first digital watermark (with a first payload) and a second digital watermark (with a second payload), where the second payload includes a reduced-bit representation of the first payload. The term “reduced-bit representation” infers a hash, digest or other reduction of the first payload. The specification provides examples of such, e.g., at page 9, lines 11-22:

In a further related implementation involving two or more watermarks per document, a first digital watermark payload (e.g., 8-256 bit payload) is hashed or otherwise reduced in bit-size. The payload hash or reduced-bit representation is included as at least a part of a second digital watermark payload. The first and second watermarks are thus intertwined. To illustrate, say a first digital watermark payload includes a document identifier or other document data. The document identifier can be a number printed (VIN or title number) on the document or stored in a data repository. The other data can be, e.g., a bearer’s name, date of birth or other document information. The document identifier is carried in the first digital watermark payload as, e.g., a 28-bit number. A hash of the 28-bit number is generated and used as at least a part of a second digital watermark payload. Any conventional hashing

algorithm, which reduces the bit representation of the first payload, is acceptable.

(Of course, other examples will fall within the scope of claim 35.)

The specification states that digital watermarking is a form of “steganography.” *See* the specification, page 1, line 22. One of ordinary skill in the art would understand that steganography is the art of concealing the existence of information within seemingly innocuous carriers. *See* Neil F. Johnson, *Steganography*, Technical Report, November 1995, <http://www.jjtc.com/stegdoc/sec201.html> (original paper placed on the web in 1996).

A digital watermark, thus, is concealed from a user. In contrast, a bar code is plain to see.

The final Office Action cites to the Bunn patent at Col. 3, lines 15-35 as meeting the features of claim 35. *See* the final Office Action, page 5, lines 7-11. One of ordinary skill in the art would disagree for at least two reasons: i) first, the cited Bunn discusses barcodes, and not digital watermarks; and ii) second, the cited Bunn does not have a second payload including a reduced-bit representation of the first payload. The cited Bunn passage (Col. 3, lines 15-35) is reproduced below for the Board’s convenience:

(Step 209) If on the other hand the test certificate is to be mailed directly to the registered keeper of the vehicle, the function transmits the test information to the central server, with a request for a mailed certificate. The central server performs checks as described above, and if these checks are satisfactory, prints the certificate. (Steps 210-212) If the test result was "failure", the function prompts the user to feed a blank failure notice into the printer. The function then transmits the test information to the central server, and prints the failure notice. FIG. 3 shows the format of the certificate. It includes the following: Pre-printed certificate serial number 301, and pre-printed barcode (not shown) containing this serial number. Test date 302. Expiry date of certificate 303. Vehicle details 304. MAC 305, as a string of characters. Bar code 306, representing the MAC in bar code form.

First, there is no discussion of a first digital watermark (having a first payload) and a second digital watermark (having a second payload) in the above Bunn passage.

None<sup>1</sup>.

Bunn mentions a “barcode” in the cited passage. But a barcode is not a digital watermark, as the Board has recently recognized. *See* Decision on Appeal, Appeal No. 2007-4254, Jan. 31, 2007, Board of Patent Appeals and Interferences, page 14, lines 3-20. (A copy of this Decision is attached to this Appeal Brief.)

As pointed out by the Appellants throughout the Brief, the Examiner erred in stating a bar code reads on a digital watermark. As we understand digital watermarks and bar codes from the perspective of one of ordinary skill in the art, the evidence would suggest that one of ordinary skill would not equate the two. A digital watermark is embedded in the media (e.g. images, audio signals, video signals, software documents, software).... A bar code is a band of printed horizontal strip of vertical bars of varying widths, groups of which represent decimal digits and are used for identifying objects (e.g. commercial products, inventory, asset information (for instance, PTO's computer property assigned to an employee)) that is placed on the object or media.... A digital watermark is imperceptible or nearly imperceptible to a user hence from a practical standpoint the watermark is hidden from the user, whereas a bar code is perceptible and not hidden. As such, though both digital watermarks and bar codes have a common characteristic of being read by a machine to one skilled in the art they are not the same or equivalent structures....

Bunn does not have digital watermarking. It merely has barcodes.

Second, there is no discussion at the cited Bunn passage of the *second payload including at least a reduced-bit representation of the first payload*. Bunn states that a pre-printed barcode may include a pre-printed serial number, and that a barcode 306 may include a MAC 305. (The MAC is a message authentication code – from a server – including a hash of a predetermined sub-set of information in a message. The message may include details of a tester, test station,

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<sup>1</sup> In fact, the word “watermark” appears only once in the Bunn patent, at Col. 2, lines 59-61. But Bunn does not call his watermark a “digital watermark,” or even a “steganographic watermark.” Bunn does not suggest that his “watermark” is a data carrier (e.g., carries a payload) as is typically the case with a digital watermark. Additionally Bunn does not suggest there is any payload relationship between two or more watermark payloads. Thus, given the context of the passage, Bunn’s use of the term “watermark” likely refers to a traditional paper watermark, the kind you hold up to the light to see if there a pattern, and not to a steganographic (hidden) or digital watermark.



serial number, vehicle details, and test results.)

So while there may be a casual relationship between barcode 306 and the pre-printed barcode via the MAC and serial number, there is not a *second payload including at least a reduced-bit representation of the first payload*, as recited in claim 35.

The final rejection of claim 35 should be reversed since it does not include each and every element of claim 35; namely, it does not have a second digital watermark payload including at least a reduced-bit representation of a first digital watermark payload.

#### Claim 26

Independent claim 26 recites:

26. *A method to facilitate transfer of a motor vehicle from a seller to a buyer, said method comprising:*

*receiving into a first data record information associated with the motor vehicle or the seller of the motor vehicle;*

*providing the buyer of the motor vehicle with a digitally watermarked object, the digital watermark comprising an identifier;*

*associating the identifier with a second data record, the second data record including information associated with the buyer of the motor vehicle;*

*associating the first data record with the second data record;*

*upon presentment of the digitally watermarked object, receiving optically captured scan data representing the digitally watermarked object, and analyzing the scan data to obtain the identifier, said method further comprising accessing at least the second data record via the identifier.*

*The Bunn patent does not have each and every element of claim 26; namely, it does not facilitate transfer of a motor vehicle from a seller to a buyer, and does not have digital watermarking.*

It is well settled that in order for an Office Action to establish a *prima facie* case of anticipation, each and every element of the claimed invention, arranged as required by the claim, must be found in a single prior art reference, either expressly or under the principles of inherency. See generally, *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677-78 (Fed. Cir. 1988); *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

The final Office Action does not establish a *prima facie* case of anticipation since the Bunn patent does not have each and every element of claim 26; namely, it does not facilitate transfer of a motor vehicle from a seller to a buyer, and does not have digital watermarking.

Claim 26 recites a method to facilitate transfer of a motor vehicle from a seller to a buyer. The cited passages of Bunn (e.g., the abstract and Col. 3, lines 1-25) do not discuss such a transaction, nor do they mention a seller at all.

For example, the Office Action cites Bunn at Col. 3, lines 1-25, as anticipating the act of: “associating the identifier with a second data record, the second data record including information associated with the buyer of the motor vehicle.” But this section does not mention a buyer, instead discussing, e.g., a vehicle test station. The test station is described at Col. 1, lines 17-25, as being a station to check the “roadworthiness” and “compliance with legal requirements”. The cited Bunn Abstract discusses a document authentication method. Indeed, we see no mention in Bunn of a buyer/seller transaction as various claimed in claim 26.

The cited Bunn passages (Col. 1, lines 30-65, Abstract, Col. 3, lines 1-25, and Col. 3, lines 15-45) are silent regarding digital watermarking. As discussed above with respect to claim 35, a barcode is not the equivalent of a digital watermark.

The Bunn patent does not have each and every element of claim 26; namely, it does not have it does not facilitate transfer of a motor vehicle from a seller to a buyer, and does not have digital watermarking.

The final rejection of claim 26 should be reversed.

Claim 14

Independent claim 14 recites:

14. *A method of providing authenticating information for a property title document, said method comprising:*

*receiving a first digital signature that is associated with a seller of property;*  
*receiving a second digital signature that is associated with a buyer of the property;*  
*using the first digital signature and the second digital signature to provide a digital watermark payload, the payload comprising authenticating information; and*  
*steganographically embedding the digital watermark payload in the property title document.*

*The Bunn patent does not have each and every element of claim 14; thus, it fails to establish a prima facie case of anticipation.*

It is well settled that in order for an Office Action to establish a *prima facie* case of anticipation, each and every element of the claimed invention, arranged as required by the claim, must be found in a single prior art reference, either expressly or under the principles of inherency. See generally, *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677-78 (Fed. Cir. 1988); *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

The final Office Action does not establish a *prima facie* case of anticipation since the Bunn patent does not have each and every element of claim 26; namely, i) Bunn does not have a property title document; ii) Bunn does not have a first signature associated with a seller, and a second digital signature associated with a buyer; iii) Bunn does use the first digital signature and the second digital signature to provide a digital watermark payload, the payload comprising authenticating information; and iv) Bunn does not have steganographically embedding for the digital watermark payload.

We take these items in turn.

First, there is no discussion at Col. 1, lines 30-65, of a property title document, contrary to the suggestion in the final Office Action at page 3, lines 6-8 of paragraph 9. The printed document there seems to be a certificate associated with a vehicle testing station.

Second, claim 14 recites receiving a first digital signature that is associated with a **seller** of property and receiving a second digital signature that is associated with a **buyer** of the property. As discussed above with respect to claim 26, Bunn does not discuss a seller of property. While the cited Col. 1, lines 30-65 Bunn passage (see the final Office Action, page 4, lines 1-2) discusses an “authentication authority,” it makes not mention of whether such authority is a seller of property that a buyer wishes to purchase.

Third, claim 14 recites using the first digital signature and the second digital signature to provide a digital watermark payload, the payload comprising authenticating information. The cited Col. 3, lines 15-55 (see the final Office Action, page 4, lines 5-7) Bunn passage makes no mention of these features.

We see mention of a MAC 305 in this passage. (The MAC is a message authentication code – from a server – including a hash of a predetermined sub-set of information in a message. The message may include details of a tester, test station, serial number, vehicle details, and test results.) But the MAC 305 does not use a first digital signature and the second digital signature to provide a digital watermark payload.

Fourth, Claim 14 also recites steganographically embedding a digital watermark payload in a property title document. As discussed above with respect to claim 35, one of ordinary skill in the art would understand that steganography is the art of concealing the existence of information within seemingly innocuous carriers. *See* Neil F. Johnson, Steganography, Technical Report, November 1995, <http://www.jjtc.com/stegdoc/sec201.html> (original paper placed on the web in 1996).

There is no discussion at Bunn's Col. 4, lines 12-55 of these features, contrary to the suggestion at page 4, lines 8-9, of the final Office Action. Indeed, while there may be mention of a barcode at the cited passage, there is no discussion of steganographically embedding a digital watermark payload in a property title document.

The Bunn patent does not have each and every element of claim 14. Thus, the final Office Action fails to establish a *prima facie* case of anticipation. And the final rejection of claim 26 should be reversed.

#### Claim 1

Independent claim 1 recites:

1. *A license plate for attachment to a motor vehicle, the license plate comprising auxiliary data steganographically embedded therein.*

Claim 1 recites a license plate for attachment to a motor vehicle, the license plate comprising auxiliary data steganographically embedded therein.

We see no discussion of a license plate in Bunn. None. Even an electronic word search of Bunn via the USPTO's website failed to find the terms "license plate." Bunn also does not have auxiliary data *steganographically embedded* in a license plate.

Thus, the final Office Action fails to establish a *prima facie* case of anticipation, since each and every element of claim 1, arranged as required by the claim, is not found in Bunn, either expressly or under the principles of inherency.

The final rejection of claim 1 should be reversed.

#### Claim 31

Dependent claim 31 recites:

31. *The method of claim 30, further comprising automatically notifying at least a government agency after the buyer confirms the transfer.*

The final Office Action cited Bunn at the now-familiar Col. 3, lines 20-59, passage as meeting the features of claim 31.

Yet, there is no discussion of automatically notifying at least a government agency after the buyer confirms the transfer at this cited passage. Indeed, while there is discussion of presenting a certificate to a post office to authenticate a certificate, there is no discussion of automatically notifying a government agency after a buyer confirms a transfer of property.

The final Office Action fails to establish a *prima facie* case of anticipation, since each and every element of claim 31, arranged as required by the claim, is not found in Bunn, either expressly or under the principles of inherency.

The final rejection of claim 31 should be reversed.

#### Claim 17

Dependent claim 17 recites:

17. The method of claim 14, wherein the authentication information comprises an output of a function which includes the first digital signature and the second digital signature as inputs.

The final Office Action cited Bunn at Col. 3, lines 40-59, as meeting the features of claim 17.

Yet, there is no discussion of authentication information comprises an output of a function which includes the first digital signature and the second digital signature as inputs in the cited passage.

Thus, the final Office Action fails to establish a *prima facie* case of anticipation, since each and every element of claim 17, arranged as required by the claim, is not found in Bunn, either expressly or under the principles of inherency.

The final rejection of claim 17 should be reversed.

Claim 4

Dependent claim 4 recites:

4. *The license plate according to claim 3, wherein the digital watermark comprises an orientation component.*

Claim 4 includes a digital watermarking comprises the orientation component. The specification discusses a digital watermarking orientation component in terms of it ability to provide location information or orientation information within a host signal (e.g., page 2, lines 3-9) or to aid in signal re-registration or distortion compensation (e.g., page 16, lines 16-17).

The final Office Action cites Bunn at Col. 1, lines 30-65, for a digital watermark including an orientation component. *See* the final Office Action, page 5, lines 21-22.

As discussed in some of the above claims, there is no discussion of digital watermarking, a form of steganography, in Bunn, let alone in Col. 1 of Bunn. Moreover, we do not see any mention of a digital watermark orientation component in Col. 1.

Thus, the final Office Action fails to establish a *prima facie* case of anticipation, since each and every element of claim 4, arranged as required by the claim, is not found in Bunn, either expressly or under the principles of inherency.

The final rejection of claim 4 should be reversed.

**CONCLUSION AND REQUEST FOR REVERSAL**

Appellants respectfully request the Board to reverse the final rejection of the pending claims.

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Appeal Brief – 10/666,929

Respectfully submitted,

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## CLAIMS APPENDIX

1. (original): A license plate for attachment to a motor vehicle, the license plate comprising auxiliary data steganographically embedded therein.
2. (previously presented): The license plate according to claim 1, wherein the motor vehicle comprises at least one of a car, truck, sport utility vehicle, motorcycle, trailer to be pulled by a motor vehicle, motor home, plane, golf cart, boat, tractor, bus or off-road vehicle.
3. (original): The license plate according to claim 1, wherein the auxiliary data is steganographically embedded in the license plate in the form of a digital watermark.
4. (original): The license plate according to claim 3, wherein the digital watermark comprises an orientation component.
5. (original): The license plate according to claim 3, wherein the auxiliary data comprises two or more payload fields.
6. (original): The license plate according to claim 5, wherein at least a first of the payload fields includes first plural-bit data to uniquely identify the motor vehicle.



7. (original): The license plate according to claim 6, wherein the first plural-bit data comprises a reduced-bit representation of a vehicle identification number (VIN) assigned to the motor vehicle.

8. (original): The license plate according to claim 6, wherein the first plural-bit data comprises a cryptographic permutation of a vehicle identification number (VIN) assigned to the motor vehicle.

9. (original): The license plate according to claim 6, wherein the first plural-bit data comprises a vehicle identification number (VIN) assigned to the motor vehicle.

10. (previously presented): The license plate according to claim 5, wherein at least a second of the payload fields includes second plural-bit data to be used to reference documentation associated with at least one of the motor vehicle or an owner of the vehicle.

11. (previously presented): The license plate according to claim 10, wherein the documentation comprises at least one of vehicle registration card, disabled placard, cargo manifest, vehicle insurance document, vehicle title, a driver's license or a trip permit.

12. (original): The license plate according to claim 3, wherein the auxiliary data comprises an identifier to be used to interrogate a data structure, the data structure comprising

information associated with the vehicle or with an owner of the vehicle.

13. (original): The license plate according to claim 1, wherein the license plate comprises a sticker or tag, and wherein the auxiliary data is steganographically conveyed via the sticker or tag.

14. (previously presented): A method of providing authenticating information for a property title document, said method comprising:

receiving a first digital signature that is associated with a seller of property;  
receiving a second digital signature that is associated with a buyer of the property;  
using the first digital signature and the second digital signature to provide a digital watermark payload, the payload comprising authenticating information; and  
steganographically embedding the digital watermark payload in the property title document.

15. (original): The method of claim 14, wherein the authentication information comprises the first digital signature and the second digital signature.

16. (previously presented): The method of claim 14, wherein the authentication information comprises a cryptographic permutation of at least one of the first digital signature or the second digital signature.

17. (original): The method of claim 14, wherein the authentication information comprises an output of a function which includes the first digital signature and the second digital signature as inputs.

18. (original): The method of claim 14, wherein at least one of the authentication information, first digital signature and second digital signature comprises a time or date stamp.

19. (previously presented): The method of claim 14, wherein the property comprises at least one of a motor vehicle, personal property or real property.

20. (previously presented): The method of claim 14, wherein the authentication information comprises a reduced-bit representation of at least one of the first digital signature or the second digital signature.

21. (previously presented): The method of claim 14, wherein the property title document comprises at least one of an electronic document or a printed document.

22. (previously presented): A method to authenticate documentation associated with a motor vehicle, the documentation comprises plural-bit auxiliary data steganographically embedded therein through alterations to graphics, artwork or information carried on the documentation, the auxiliary data comprising at least an identifier, said method comprising:

receiving optically captured image data that corresponds to the documentation;

analyzing the image data to obtain the identifier, wherein the identifier includes or links to information to uniquely identify the motor vehicle; and

providing a signal in response to the identifier being obtained.

23. (original): The method of claim 22, wherein the identifier is intertwined with another identifier, the another identifier being steganographically embedded in different documentation, the different documentation also being associated with a motor vehicle.

24. (previously presented): The method of claim 22, wherein the documentation comprises at least one of an emissions document or sticker, a license plate, an insurance card, disabled placard, cab or taxi documentation, a trip permit, a cargo manifest, a registration document, an inspection sticker or document, or a motor vehicle title.

25. (original): The method of claim 22, wherein the information further comprises a listing of drivers who are authorized to operate the motor vehicle.

26. (original): A method to facilitate transfer of a motor vehicle from a seller to a buyer, said method comprising:

receiving into a first data record information associated with the motor vehicle or the seller of the motor vehicle;

providing the buyer of the motor vehicle with a digitally watermarked object, the digital watermark comprising an identifier;

associating the identifier with a second data record, the second data record including information associated with the buyer of the motor vehicle;

associating the first data record with the second data record;

upon presentment of the digitally watermarked object, receiving optically captured scan data representing the digitally watermarked object, and analyzing the scan data to obtain the identifier, said method further comprising accessing at least the second data record via the identifier.

27. (original): The method of claim 26, further comprising accessing the first data record.

28. (original): The method of claim 27, wherein the first data record and the second data record are associated via the identifier.

29. (original): The method of claim 27, further comprising presenting at least some of the information that is associated with the motor vehicle or the seller of the motor vehicle to the buyer through a computer interface.

30. (original): The method of claim 29, further comprising prompting the buyer to confirm the transfer through the computer interface.

31. (original): The method of claim 30, further comprising automatically notifying at least a government agency after the buyer confirms the transfer.

32. (original): The method of claim 26, wherein the motor vehicle is purchased through an auction.

33. (original): The method of claim 30, wherein the information associated with the buyer comprises an account number, said method further comprising automatically debiting the account after the buyer confirms the transfer.

34. (original): The method of claim 33, further comprising generating a printed title document after the buyer confirms the transfer.

35. (original): A printed document comprising:

- a document identifier;
- a first digital watermark including a first payload, the first payload comprising a representation of the document identifier;
- a second digital watermark including a second payload, the second payload comprising at least a reduced-bit representation of the first payload.

36. (original): The document of claim 35, wherein the document is associated with a motor vehicle.

37. (original): The document of claim 36, wherein the document identifier comprises a vehicle identification number (VIN).

38. (original): The document of claim 35, wherein the document comprises information printed therein, and wherein said second payload further comprises a representation of at least a portion of the printed information.

39. (original): The document of claim 35, wherein the second digital watermark is imparted to the document through laser engraving.

40. (original): The document of claim 35, wherein the reduced-bit representation of the first payload comprises a hash.

41. (original): The document of claim 35, wherein the reduced-bit representation of the first payload comprises a cryptographic permutation.

42. (original): The document of claim 35, wherein the document comprises variable information printed thereon, and wherein the second digital watermark comprises at least some of the variable information, wherein the variable information varies from document to document.



**EVIDENCE APPENDIX**  
**(No Evidence)**

**RELATED PROCEEDINGS APPENDIX**  
**(No Related Proceedings)**

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* BRETT T. HANNIGAN, RAVI K. SHARMA,  
STEPHEN K. DECKER, PHILLIP ANDREW SEDER,  
TONY F. RODRIGUEZ, and ANDREW KLONSKY

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Appeal 2007-4254  
Application 10/139,147  
Technology Center 3600

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Decided: January 31, 2008

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Before MURRIEL E. CRAWFORD, HUBERT C. LORIN, and  
MICHAEL W. O'NEILL, *Administrative Patent Judges*.

O'NEILL, *Administrative Patent Judge*.

DECISION ON APPEAL

## STATEMENT OF THE CASE

Hannigan (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-3, 5-13, 15-28, 30, and 31. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We REVERSE.<sup>1</sup>

## THE INVENTION

The Appellants' claimed invention is to providing an interactive link between a toy or game and a computer (Specification, 10:25-28). The toy or game carries hidden digital information in a digital watermark that informs the computer the nature of the toy or object in the game, its location and orientation (Specification, 10:29 to 11:2). The watermark is embedded in an image on the toy and its visibility should not affect the artistic value of the toy. (Specification 11:2-4 and 12:28.) A camera captures an image of the toy, software on the computer performs the watermark detection, and on detection actions are initiated. (Specification 12:6-18.)

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<sup>1</sup> Our decision will make reference to Appellants' Appeal Brief ("App. Br.," filed Apr. 26, 2006), Reply Brief ("Reply Br.," filed Sep. 12, 2006), the Examiner's Answer ("Answer," mailed Jul. 14, 2006), and the Final Rejection ("Final Rejection," mailed Nov. 11, 2005).

Claims 1, 5, 9, 10, and 15, reproduced below, are representative of the subject matter on appeal.

1. A toy system comprising:

a plurality of toy components, each toy component bearing a digital watermark imperceptibly embedded on a surface thereof;

an image capture device; and

a programmed computer coupled to the image capture device and operable to receive images of the toy components, and in response to the images, decoding digital watermarks from the images and executing actions associated with the digital watermarks;

wherein different actions are respectively associated with the toy components, and wherein the programmed computer is operable to execute different actions in response to receiving separate instances of images captured of the same toy component.

5. A method of enhancing a computer game comprising:

generating optical scan data corresponding to an object including plural-bit data steganographically encoded therein;

processing the optical scan data to extract plural-bit data steganographically encoded therein;

wherein the plural-bit data corresponds to at least one game attribute; and

accommodating the at least one attribute to modify the  
computer game.

9. A method of playing a computer game comprising:
  - upon presentment of a digitally watermarked object,  
capturing an image of the object with an input device;
  - analyzing the captured image to decode a digital  
watermark embedded therein, the digital watermark  
including an identifier;
  - interrogating a database with the identifier to determine  
at least one game attribute associated with identifier;  
and
  - modifying the at least one attribute to reflect activity  
during play of the computer game.
10. A system for maintaining game information comprising:
  - a first user terminal having computer executable code  
stored thereon, the executable code including code for  
operation of a computer game; and
  - a database in communication with the first user terminal,  
said database including a plurality of data entries, the  
data entries organized according to identifiers, said  
data entries being available for cooperation with the  
computer game's code upon a request from the first  
user terminal, wherein the first user terminal requests  
at least a first data entry associated with a first  
identifier, the first identifier being obtained from data  
encoded in a physical object,

wherein the first data entry is modified based on game  
interaction.

15. A computer comprising:

a communications bus;

memory having executable software code stored thereon;  
and

a processor in communication with said memory via said communications bus, said processor to execute the software code stored in said memory, wherein the software code comprises code to:

decode a digital watermark, the watermark including a unique identifier;

communicate the unique identifier to a database to retrieve game or character attribute information, the information being associated with the unique identifier;

handle the game or character attribute information when received from the database; and

modify at least one characteristic or operation of a software computer game in accordance with the received game or character attribute information.

#### THE PRIOR ART

The Examiner relies upon the following as evidence of unpatentability:

Mero	US 5,810,666	Sep. 22, 1998
Dougherty	US 6,076,734	Jun. 20, 2000
Berstis	US 6,229,526 B1	May 8, 2001
Piernot	US 6,417,663 B1	Jul. 9, 2002



### THE REJECTIONS

The following rejections are before us for review<sup>2</sup>:

1. Claims 1-4 and 29 are rejected under 35 U.S.C. § 102(e) as being anticipated by Dougherty.
2. Claim 30 is rejected under 35 U.S.C. § 102(e) as being anticipated by Piernot.
3. Claim 9-28 are rejected under 35 U.S.C. § 102(b) as being anticipated by Mero.
4. Claims 5-8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mero in view of Dougherty.
5. Claim 31 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Piernot in view of Berstis.

### ISSUES

The first issue is whether the Appellants have shown that the Examiner erred in rejecting claims 1-4 and 29 as being anticipated by Dougherty.<sup>3</sup> The second issue is whether the Appellants have shown that the Examiner erred in rejecting claim 30 as anticipated by Piernot. The third issue is whether the Appellants have shown that the Examiner erred in

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<sup>2</sup> The Examiner has withdrawn the rejection of claims 1-4 under 35 U.S.C. § 112, second paragraph. (Answer, 8.) As such, the rejection is not before us for review.

<sup>3</sup> Only those arguments actually made by Appellants have been considered in this decision. Arguments that Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007).

rejecting claims 9-28 as being anticipated by Mero. The fourth issue is whether the Appellants have shown that the Examiner erred in rejecting claim 5-8 as being unpatentable over Mero and Dougherty. The fifth issue is whether the Appellants have shown that the Examiner erred in rejecting claim 31 as being unpatentable over Piernot in view of Berstis.

For claims 1, 9, 11, 15-17, 21, and 30 the issue of whether the Appellants have shown error turns on whether a machine readable bar code fits within the definition of a digital watermark as defined by the Appellants' Specification. For claim 10 the issue of whether the Appellants have shown error turns on whether Mero reads on the claim limitations. For claim 5 the issue of whether the Appellants have shown error turns on whether Mero and Dougherty teach steganographically extracting data.

## FINDINGS OF FACT

We find that the following enumerated findings of fact are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. The Appellants' Specification defines digital watermarking as "a process for modifying physical or electronic media to embed a machine-readable code into the media. The media may be modified such that the embedded code is imperceptible or nearly imperceptible to the user, yet may be detected through an automated detection process." (Specification 1:20-24.)
2. The Appellants' Specification does not define steganography. As such, the definition to one of ordinary skill in the art applies: the art of concealing the existence of information within seemingly innocuous carriers. Neil F. Johnson, *Steganography*, Technical Report, November 1995, [http://www.jjtc.com/pub/tr\\_95\\_11\\_nfj/index.html](http://www.jjtc.com/pub/tr_95_11_nfj/index.html) (original paper placed on the web in 1996).
3. A machine readable bar code is a printed horizontal strip of vertical bars of varying widths, groups of which represent decimal digits and are used for identifying commercial products or parts. Bar codes are read by a bar code reader and the code interpreted either through software or a hardware decoder. Free On-Line Dictionary of

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Computing, <http://foldoc.org/index.cgi?query=bar+code> (last visited Jan. 22, 2008).

*The scope and content of the prior art*

4. Mero discloses role playing games that involve trading cards. (Mero, col. 1, ll. 4-5.) The trading cards are individually numbered to make each unique. (Mero, col. 2, ll. 3-4.) The first side of each card contains information about the card including a graphical picture or card art and a number and perhaps an associated bar code. (Mero, col. 7, l. 66 to col. 8, l. 16.) The numbering system allows for manual entry (using the number) or scanning (using the bar code) of each card into a database suitable for registering and tracking all game cards. Once a player has entered a given card into the database, no other player will be able to use that card until it is removed from the database. Thus, any one card may only be used by one player at any given time. (Mero, col. 8, ll. 51-65.)

*The level of skill in the art*

5. Neither the Examiner nor Appellants have addressed the level of ordinary skill in the pertinent arts of concealing data within a media. As such, we will therefore consider the cited prior art as representative of the level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d. 1350, 1355 (Fed. Cir. 2001) (“[T]he absence of specific findings on the level of skill in the art does not give rise to reversible error ‘where the prior art itself reflects an appropriate level and a need for testimony is not shown.’”) (Quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985).

*Secondary considerations*

6. There is no evidence on record of secondary considerations of non-obviousness for our consideration.

PRINCIPLES OF LAW

Claims are given the broadest reasonable construction consistent with the specification. *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997). “Words which are defined in the specification must be given the same meaning when used in a claim.” *McGill, Inc. v. John Zink Co.*, 736 F.2d 666, 674 (Fed. Cir.), *cert. denied*, 469 U.S. 1037 (1984). While the patent application’s prosecution history is part of the intrinsic evidence used to construe claims because it “represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987).

It is well settled that in order for the examiner to establish a *prima facie* case of anticipation, each and every element of the claimed invention, arranged as required by the claim, must be found in a single prior art

reference, either expressly or under the principles of inherency. *See generally, In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677-78 (Fed. Cir. 1988); *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

It is elementary that to support an obviousness rejection, all of the claim limitations must be taught or suggested by the prior art applied (*see In re Royka*, 490 F.2d 981, 984-85 (CCPA 1974)) and that all words in a claim must be considered in judging the patentability of that claim against the prior art (*In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970)).

## ANALYSIS

We will not sustain the Examiner's rejection of claims 1, 9, 11, 15-17, 21, and 30. As pointed out by the Appellants throughout the Brief, the Examiner erred in stating a bar code reads on a digital watermark. As we understand digital watermarks and bar codes from the perspective of one of ordinary skill in the art, the evidence would suggest that one of ordinary skill would not equate the two. A digital watermark is embedded in the media (e.g. images, audio signals, video signals, software documents, software). (Finding of Fact 1.) A bar code is a band of printed horizontal strip of vertical bars of varying widths, groups of which represent decimal digits and are used for identifying objects (e.g. commercial products, inventory, asset information (for instance, PTO's computer property assigned to an employee)) that is placed on the object or media. (Finding of Fact 3.) A digital watermark is imperceptible or nearly imperceptible to a user hence from a practical standpoint the watermark is hidden from the user, whereas a bar code is perceptible and not hidden. As such, though both digital watermarks and bar codes have a common characteristic of being read by a machine to one skilled in the art they are not the same or equivalent structures because of the differences as stated in the Appellants' Brief as well and *supra*. (See also Finding of Facts 1 and 3). For the same reasons, the rejections of the claims that depend from claims 1, 9, 11, 15-17, 21, and 30 are not sustained.



We will not sustain the Examiner's rejection of claim 5 because the Examiner erred, as pointed out by the Appellants (Brief, page 28), in stating a bar code teaches steganographically encoded data. Steganographical data is concealed in otherwise innocuous data. (Finding of Fact 2.) A bar code is not concealed in any other data. Moreover, bar code data concealed in an innocuous carrier would defeat the purpose of bar codes which is to quickly extract the information needed to identify the object the bar code is attached thereto. Dougherty does not appear to make up for the deficiency in Mero. For the same reasons, any rejections to any claims that depend from claim 5 are not sustained.

We will not sustain the Examiner's rejection of claim 10. As the Appellants have pointed out in the Brief on page 18 the Final Rejection does not individually discuss how Mero should be applied to teach or suggest a database in communication with a first user terminal, where the database includes a plurality of data entries organized according to identifiers. With agree with the Appellants that the Final Rejection does not discuss how Mero should be applied to teach or suggest that the data entries are available for cooperation with computer game code upon a request from the first user terminal, where the first user terminal request at least a first data entry associated with a first identifier obtainable from data encoded in a physical object. Further, the Final Rejection does not address how Mero should be applied to teach or suggest that the first data entry is modified based on game interaction. As we see Mero, the trading cards are individually

numbered to make each unique. The one side of each card contains information about the card including: a graphical picture or card art, a number, and perhaps an associated bar code. The numbering system allows for manual entry (using the number) or scanning (using the bar code) of each card into a database suitable for registering and tracking all game cards. Once a player has entered a given card into the database, no other player will be able to use that card until it is removed from the database. As such, any one card may only be used by one player at any given time. (*See Finding of Fact 4.*) Thus, the Final Rejection fails to make out a prima facie case. For the same reasons, any rejections to any claims that depend from claim 10 are not sustained.

### CONCLUSIONS OF LAW

We conclude that the Appellants have shown that the Examiner erred in rejecting claims 1-3, 5-13, 15-28, 30, and 31.

### DECISION

The decision of the Examiner to reject claims 1-3, 5-13, 15-28, 30, and 31 is reversed.

REVERSED

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jlb

DIGIMARC CORPORATION  
9405 SW GEMINI DRIVE  
BEAVERTON OR 97008